Appendix A: Governor's Proclamation

STATE OF INDIANA

EXECUTIVE DEPARTMENT
INDIANAPOLIS

Executive Order

PROCLAMATION

TO ALL TO WHOM THESE PRESENTS MAY COME, GREETING:

WHEREAS, in the past decade, governmental agencies, educational institutions and private industry have developed increasingly powerful computer systems designed to process and analyze map and other spatial information, collectively called geographic information system (GIS) technology; and

WHEREAS, geographic information system technology can be used strategically as a decision-making tool in such areas as: air resources, agricultural resources, commerce, cultural resources, education, environmental management, facility siting, forestry, geology, health, land resources, natural resources, local government planning, public safety, social services, taxation and revenue, transportation, utilities, waste management, water resources and wildlife; and

WHEREAS, investment in geographic data, geographic information system technologies and education and training is necessary to make effective use of such data and information; and

WHEREAS, increasingly complex decisions, overlapping responsibilities and limited financial resources demand the statewide coordination of investments, practices and policies related to geographic data and geographic information system technologies to enhance the sharing and stewardship of geographic data, to minimize duplication of effort and public expenditure and to increase the competitiveness of Indiana; and

WHEREAS, increased and continued cooperation among state and local government and the statewide geographic information systems community is desirable and critical for data-sharing initiatives; and

WHEREAS, there are several published Indiana studies that have identified as a priority the need for establishment of a statewide coordinating body in the form of a coordinating council; and

WHEREAS, an officially designated organization can most strongly represent Indiana's interests in communications and discussions with federal agencies regarding spatial data, spatial data exchanges, spatial data standards and other important issues; and

WHEREAS, the Indiana GIS Initiative is actively engaged in statewide coordination efforts and project development of geographic data; and

STATE OF INDIANA

EXECUTIVE DEPARTMENT
INDIANAPOLIS

PROCLAMATION

Executive Order

TO ALL TO WHOM THESE PRESENTS MAY COME, GREETING:

WHEREAS, the IGIC shall develop and recommend policies, standards, guidelines and strategies that emphasize cooperation and coordination among Indiana GIS users, federal agencies and other states that are developing and implementing geographic information systems, in order to maximize the value and cost-effectiveness of geographic data and technologies and to avoid redundant activities; and

WHEREAS, the IGIC shall provide support and advice to member organizations and will not supersede those organizations' internal policies; and

WHEREAS, the IGIC has been organized to receive grants, contracts, in-kind assistance and/or gifts from governmental agencies, corporations, for-profit and not-for-profit associations; and

WHEREAS, the IGIC shall provide assistance with disputes among geographic information systems partners; and

WHEREAS, the IGIC shall report its findings and recommendations to the Governor and the state Chief Information Officer; and

WHEREAS, this report shall include requirements, goals and an implementation plan for the coordination and development of a statewide geographic information infrastructure; and

WHEREAS, biennial reports shall regularly include the status of coordination of Indiana geographic information systems through dissemination of data and data products, education and outreach, building partnerships and adoption of standards; and

WHEREAS, the IGIC will accomplish its mission through regularly scheduled meetings, and as necessary, subcommittee and workgroup meetings;

NOW, THEREFORE, I, FRANK O'BANNON, Governor of the State of Indiana, do hereby recognize the establishment of and participation by the state in the

INDIANA GEOGRAPHIC INFORMATION COUNCIL

in the State of Indiana.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Indiana at the Capitol in Indianapolis on this 5th day of June, 2000.

Frank O'Bannon

BY THE GOVERNOR: Frank O'Bannon
Governor of Indiana

ATTEST: *Sue Anne Gilroy*
Sue Anne Gilroy
Secretary of State

SF 18322R

Appendix B: INGISI Commitment to Success

Appendix C: Council Members, Roles and Responsibilities

The membership of the Council shall be comprised of no more than twenty five (25) members representing the statewide GIS user community, comprised of the following constituencies: County Government (2), Municipal Government (2), State Government (2), Federal Government (2), Not-for Profit (2), Commercial GIS Service Provider (2), Regional GIS Consortia (2), Private Industry (2), Surveyors (2), Universities (2), Regional Planning Commissions (1), Utilities (2), and Other (Any Sector or None) (2).

Membership by Professional Associations and the State of Indiana Office of GIS shall, at their discretion, be held by their president or senior level executive or their designee and their Council membership will rotate within their own organization. The following Professional Associations, and the State of Indiana Office of GIS, shall be able to hold permanent seats on the Council: Association of Indiana Counties, Indiana Association of Cities and Towns, and the Indiana County Surveyors Association.

BOARD MEMBERS

County
Association of Indiana Counties *(Permanent Council Seat)*
Travis Whorl, Legislative Associate *(Executive Committee Member at Large)*
Association of Indiana Counties
101 W. Ohio St.
Suite 1792
Indianapolis, IN 46204
phone: (317) 684-3710
Email: tworl@indianacounties.org

County
Larry Stout, Hamilton County GIS Manager
Hamilton County Information System Services Dept.
One Hamilton Co. Square
Noblesville, IN 46060
phone: (317) 776-8254
Email: lstout@indy.net

Municipality
Indiana Association of Cities and Towns *(Permanent Council Seat)*
Mak Bucherl, Director of Communications
Indiana Association of Cities and Towns

phone: (317) 237-6200
Email: mbucherl@citiesandtowns.org

Municipality
Mike Machlen, City of Elkhart
City of Elkhart Public Works & Utilities
1201 S Nappanee St
Elkhart, IN 46516
phone: (219) 293-2572
Email: mmachlan@yahoo.com

State
State GIS Coordinator *(Permanent Council Seat; Secretary)*
Roger Koelpin, State GIS Coordinator
Indiana State Agency GIS Director
Data Processing Oversight Commission
Indiana Government Center North
phone: (317) 232-0181
Email: rkoelpin@dpoc.state.in.us

State
Irvin Goldblatt, IDEM GIS Coordinator
Indiana Department of Environmental Management, OSHWM
100 N Senate Ave
IGNC, Room 1200
Indianapolis, IN 46206-6015
phone: (317) 233-1000
Email: igoldblat@dem.state.in.us

Federal
Jane Hardisty, NRCS State Conservationist (via Bruce Nielsen)
Jane Hardisty
USDA-Natural Resources Conservation Service
6013 Lakeside Blvd.
Indianapolis, IN 46278
phone: (317) 290-3200
Email: jane.hardisty@in.usda.gov

Bruce Nielsen (for Jane Hardisty)
NRCS
6013 Lakeside Blvd.
Indianapolis, IN 46278-2933
phone: (317) 290-3200 x349
Email: bnielsen@in.nrcs.usda.gov

Federal
Lindsay Swain, USGS District Chief
U.S. Geological Survey
5957 Lakeside Blvd
Indianapolis, IN 46278-1996
phone: (317) 290-3333 x175
Email: lswain@usgs.gov

Not-for-Profit
Bob Weaver, President Hoosier Heartland / IASWCD, Inc.
Hoosier Heartland / Johnson County Soil and Water Conservation District
P.O. Box 281
Greenwood, IN 46142
phone: (317) 881-5565
Email: chelp@netusa1.net

Not-for-Profit
VACANT – TBA
Mr. Bowden Quinn, Grand Cal Task Force Executive Director
Grand Cal Task Force (GCTF)
2400 New York Ave., Suite 303
Whiting, IN 46394

Commercial GIS Service Provider
VACANT – TBA
Mr. Phillip Worrall, Analytical Surveys Inc.
941 N Meridian St.
Indianapolis, IN 47405
phone: (317) 634-1000
Email: xxx@anlt.com

Commercial GIS Service Provider
Eric Torok, The Schneider Corporation GIS Director *(Treasurer)*
The Schneider Corporation
Ft. Benjamin Harrison
Indianapolis, IN 462xx
phone: (317) 898-8282
Email: etorok@theschneidercorp.com

Regional GIS Consortia
Becky McKinley, NW Indiana GIS Forum Co-Chair
NW Indiana GIS Forum
phone: (219) 853-6520 x516
Email: rgalambos@surfnetinc.com

Regional GIS Consortia
David Mockert, City of Indianapolis GIS Administrator
Marion County GIS / City of Indianapolis
200 E Washington, Suite 2441
City County Bldg
Indianapolis, IN 46204-3357
phone: (317) 327-4663
Email: dmockert@indygov.org

University
John Hill, IGS Assistant Director
Indiana University - Indiana Geological Survey
611 North Walnut Grove
Bloomington, IN 47405
phone: (812) 855-7636

Email: hill6@indiana.edu

University
VACANT - TBA
Mr. Jim Sparks
The Polis Center at IUPUI
1200 Waterway Blvd., Suite 100
Indianapolis, IN 46202
phone: (317) 278-2458
Email: jisparks@iupui.edu

Surveyor
Indiana Society of Professional Land Surveyors *(Vice-Chairman)*
Dan Pusey, ISPLS
Indiana Society of Professional Land Surveyors / Purdue University
1739 Klondike Road
W. Lafayette, IN 47906
phone: (765) 463-5471
Email: dipusey@purdue.edu

Surveyor
Association of County Land Surveyors *(Permanent Council Seat)*
Jay Poe, ACLS/ Huntington County Surveyor
Association of County Land Surveyors / Huntington County
201 N Jefferson
Huntington, IN 46750
phone: (219) 358-4857
Email: surveyor@huntington.in.us

Regional Planning Commission
Lisa Gehlhausen, Indiana 15 Regional Planning Commission
Indiana 15 Regional Planning Commission
610 Main Street
P.O Box 786
Jasper, IN 47547-0786
phone: (812) 482-4535
Email: lisa@ind15rpc.org

Private Industry
Michael Baise, Indiana Farm Bureau
Indiana Farm Bureau, Inc.
Agricultural Development & Natural Res. Division
225 South East Street
P.O. Box 1290
Indianapolis, IN 46206
phone: (317) 692-7833
Email: mbaise1@farmbureau.com

Private Industry
Lou Zickler, Association of Indiana Realators Executive Board
Association of Indiana Realtors / Horizon Group, Inc.
2500 One American Square
Indianapolis, IN 46282

phone: (317) 639-0488
Email: lou@zickler.com

Utilities
John Tanger, Northern Indiana Public Service Company (NIPSCO)
Northern Indiana Public Service Company
801 E. 86th Ave.
Merrillville, IN 46410
Phone: (219) 647-5505
Email: jptanger@nipsco.com

Utilities
Greg Justis, Cinergy
Cinergy
1000 East Main Street
Plainfield, Indiana 46168-1782
Attn: Distribution Support Services
phone: (317) 838-6019
Email: greg.justis@cinergy.com

Other (Any sector or None of the above)
Michael Andrews, IN Dept. of Transportation
Indiana Dept of Transportation
100 N Senate Rm N801
Indianapolis, IN 46204-2218
phone: (317) 232-7275
Email: mandrews@indot.state.in.us

Other (Any sector or None of the above)
Jill Saligoe-Simmel, *Chairman*
Watershed Research
245 W. 44th Street
Indianapolis, IN 46208
phone: (317) 920-9150
Email: jsaligoe@iupui.edu

Appendix D: Federal Geographic Data Committee Cooperating Group Status

United States Department of the Interior

U.S. GEOLOGICAL SURVEY

Reston, Virginia 22092

November 6, 2000

Ms. Jill Saligoe-Simmel, Ph.D.
Chair, Indiana Geographic Information Council
The Polis Center
Indiana University Purdue University Indianapolis
1200 Waterway Blvd., Suite 100
Indianapolis, Indiana 46202

Dear Ms. Saligoe-Simmel,

I am writing in response to your letter of October 31, 2000 requesting Federal Geographic Data Committee (FGDC) recognition of the Indiana Geographic Information Council as a Cooperating Group in support of the National Spatial Data Infrastructure. I am pleased to report the FGDC has approved your request for recognition as a cooperator with the FGDC in building the NSDI.

We have seen continued interest in the National Spatial Data Infrastructure based on shared requirements for geographic data, constrained budgets, and recognition of the value of coordinated geospatial data collection and use. Among your most notable achievements is the creation of an official statewide coordinating body from the grassroots Indiana GIS Initiative. The Indiana Geographic Information Council provides the institutional "home" for a variety of important projects to improve the quality, access and cost effectiveness of geographic information. We are confident the Council will continue to promote geographic information as a strategic resource through commitment to the projects, policies and partnerships that make the NSDI a reality.

Thank you for your support of the FGDC and the activities that are contributing to the development of the NSDI. We look forward to working with you and other members of the Indiana Geographic Information Council.

Sincerely,

John J. Moeller
FGDC Staff Director

Appendix E: State Geographic Information and Related Technology (GI/GIT) 2001 NSGIC Profile: Indiana

Lead State GI/GIT Offices/Coordinators/Directors

Jill Saligoe-Simmel, Ph.D.
Chair, Indiana Geographic Information Council
245 W. 44th Street
Indianapolis, IN 46208
317-920-9150
Fax 317-920-9151
jsaligoe@iupui.edu
http://www.in.gov/ingisi
June 2000, Governor Frank O'Bannon signed a proclamation recognizing the establishment of and participation of the state in the Indiana Geographic Information Council (IGIC) to guide the development of a statewide GI/GIT program. The IGIC encompasses a 25 member coordinating body charged with the development and biennial update of a strategic management plan; development and implementation of a statewide geographic data-sharing cooperative; recommendation of policies, standards, guidelines and strategies that emphasize cooperation and coordination among Indiana GI/GIT users; and to provide support and advice to member organizations. Organizationally, the IGIC is in the process of incorporating as a not-for-profit corporation.

Roger Koelpin
State GIS Coordinator
Chair, Indiana Government GIS Task Force
State of Indiana Data Processing and Oversight Commission
Indiana Government Center North
100 N. Senate Ave, Room N551
Indianapolis, IN 46204
317-232-0181
Fax 317-232-0748
rkoelpin@dpoc.state.in.us
The Indiana Government GIS Task Force was created by the Data Processing Oversight Commission (DPOC) in 1999 and is comprised of state agency representatives. The role of the Indiana Government GIS Task Force is to provide a forum for state agencies, working together, to develop plans and strategies for the coordination of agency GI/GIT resources. In 2000, the Task Force successfully negotiated the creation of a State GIS Coordinator to facilitate GI/GIT coordination within state government. The Coordinator position resides within the DPOC offices and reports to the Chief Information Officer. The Coordinator also servers as a permanent seat, and officer, on the Indiana Geographic Information Council.

State GI/GIT Coordinating Groups

Indiana currently has two groups that were formed to coordinate GI/GIT activities in the state, including the Indiana Geographic Information Council, serving as the formal statewide coordinating body, and the Indiana Government GIS Task Force serving state government. While recently organized, several of the participants in these groups have been involved in coordinating statewide GI/GIT activities in Indiana for many years. Another group, the Indiana GIS Initiative (INGISI) was formed in 1997 and is an informal group of representatives from various sectors using GI/GIT in Indiana. The Indiana Geographic Information Council was formed in response, and is the formal coordinating body to INGISI. The University GIS Alliance (UGISA) formed at the end of the 1980s, merged with the Indiana GIS Initiative in 2000, and continues to facilitate coordination among representatives of various academic institutions that are working with GI/GIT. As a cohesive body, the Indiana Geographic Information Council now supports GI/GIT statewide by organizing GI/GIT conferences.

Indiana Geographic Information Council (IGIC)
http://www.in.gov/ingisi
The membership of the Indiana Geographic Information Council is comprised of no more than twenty five (25) members representing the statewide GI/GIT user community, comprised of the following constituencies: County Government (2), Municipal Government (2), State Government (2), Federal Government (2), Not-for Profit (2), Commercial GIS Service Provider (2), Regional GIS Consortia (2), Private Industry (2), Surveyors (2), Universities (2), Regional Planning Commissions (1), Utilities (2), and Other (Any Sector or None) (2).

Indiana Government GIS Task Force
The Indiana State Government GIS Task Force has focused on the GI/GIT coordination needs of state government. It was created by DPOC in 1999 and is comprised of state agency representatives. Members on the Task Force are strongly represented in planning and committees of IGIC to ensure consistency and free-flow of information. Representatives from all interested agencies include:
- Department of Environmental Management
- Library
- Department of Health
- State Emergency Management Agency
- Department of Natural Resources
- Department of Commerce
- Department of Transportation
- Legislative Services Agency
- Department of Administration
- Commission on Public Records
- State Police
- Data Processing Oversight Commission
- Intelenet Commission
- State Information Center
- Tax Commissioners Board
- Utility Regulatory Commission
- Family and Social Services Administration
- Division of Workforce Development

- State Budget Agency
- Quasi-governmental Agencies
  - Intelenet & Access Indiana

Enabling Legislation, Executive Order or Other Directives
Governor Frank O'Bannon signed a proclamation recognizing the establishment of and participation of the state in the Indiana Geographic Information Council (IGIC) to guide the development of a statewide GI/GIT program. http://www.IN.gov/ingisi/pdf/proclam.PDF

Policies and Standards
The Standards and Recommendations Committee of IGIC has developed recommendations for Metadata and is developing recommendations for Projection, Datum, Coordinate Systems, and Units of Measure; and Map Scale and Accuracy. All standards and recommendations can be accessed at http://www.IN.gov/ingisi/about_us/standards_and_recommendations.html

Geospatial Data Clearinghouse/Web Portals
The Indiana Geographic Information Catalog is Indiana's metadata node on the NSDI. Supported in part by an FGDC CAP grant, the Catalog is hosted by the IUPUI University Library.
 http://134.68.190.12/metaweb/smms.asp

Geospatial Database Development
The IGIC formed as Indiana's I-Team in January 2001 to develop an inventory of current activities and plan for framework data development. Indiana's Framework I-Team plan is currently under development. Indiana's I-Team plan will be available as part of IGIC's strategic management plan and distributed via the web. Part of IGIC strategic planning includes data distribution via a statewide data clearinghouse. The first phases of data clearinghouse implementation are currently underway. www.in.gov/ingisi

Unique Strengths/Innovative Projects
The Indiana Geographic Information Council has a number of GI/GIT issues and initiatives currently underway. Every effort is made to ensure that the IGIC issues and initiatives work in support and coordination with the Indiana State Government GIS Task Force. IGIC issues and initiatives are statewide in scope and are related to the goals of the INGISI: the coordination of statewide GI through dissemination of data and data products, education and outreach, building partnerships, adoption of standards. To accomplish and set direction for each of the IGIC goals, committees enjoy the participation and hard work of numerous volunteers. A concerted effort has been made to secure the participation of local, state and federal government, universities, the private sector, and not-for-profits. The enthusiasm statewide for this initiative has been remarkable; in all, over 450 individuals from nearly 150 different organizations have become involved.   Since the IGIC and its committees began meeting in August 2000, the following progress has been made:
- Indiana Geographic Information Catalog – The first step in leveraging GI/GIT data resources is the understanding of what's out there and how to get it. The Indiana Geographic Information Catalog made its debut in January 2001.   It is a free web-based, dynamic catalog of Indiana GI/GIT data that is searchable by keywords, geographic area of interest and time period of content. The Catalog retrieves

documentation about GI/GIT datasets, including data quality and data distribution information. The Catalog is hosted at the IUPUI University Library and was funded in part by a Federal Geographic Data Committee grant awarded to the Indiana GIS Initiative (http://134.68.190.12/metaweb/smms.asp).

- Data Standards and Recommendations – The IGIC is working closely with state and local governments and will recommend standards that encourage data compatibility and enable data integration and sharing. The first recommendation approved by the IGIC is a data documentation (metadata) standard representing a critical step toward protecting data investments and data sharing, and is consistent with the federal *metadata* standard. Upcoming recommendations include technical specifications that promote data compatibility, such as Datum, Projection, and Scale and Accuracy.
- GIS Clearinghouse – The Data Sharing Committee has examined GIS clearinghouses in other states, collecting information on policies, structure, management, and business models. This process has revealed valuable information contributing to a strategy for implementation in Indiana. A strategic concept proposal is being developed that outlines a phased approach to implementing a web-based statewide GIS. Funding has been secured to implement the first phases: Strategic Assessment, System Planning and Design, and Statewide Cornerstone Implementation.
- GIS Seminar Series – A new GIS Seminar Series being co-sponsored with The Polis Center at IUPUI provides a monthly venue for exploring cross-cutting issues in GIS policy, management, and technology. Expert speakers from Indiana and across the county present on topics such as the legal issues of spatial data access, alternative GIS implementation strategies, understanding contracts for local government, and business models associated with enhanced public access to GIS.

GI/GIT Strategic Plans, Newsletters, Conferences and Other Key Events

- Statewide GIS Strategic Planning – The IGIC recognizes that GI/GIT is quickly becoming a core integrative technology that can affect the quality of life for Indiana citizens – it's a critical tool in areas such as economic development, land use, and resource management, and provides the infrastructure for delivery of services such as e-government and location-based services. The strategic planning workgroup of the IGIC is currently defining the mission, vision, objectives, and goals of the IGIC geared toward action items and implementation strategies for the IGIC committees. A Statewide GIS Questionnaire was recently completed to identify the status of GI/GIT across the state and identify gaps in vital framework data. The Indiana State Government GIS Task Force is also completing a comprehensive strategic planning process for state government GI/GIT.
- Statewide GIS Conference – Planning continues for the next Indiana GIS Conference, February 27-March 1, 2002 in Indianapolis. Last year's 2-day conference was held at the Indiana Convention Center and nearly 400 people attended.
- GIS Information Access Center – The web site of the statewide GIS initiative provides an entry point to Indiana GI/GIT and the Indiana Geographic Information Council – its committees, quarterly newsletters, documents and meeting minutes; future Statewide Internet Mapping System; calendar of events; news releases; jobs board; links pages; on-line discussion forum; state, regional and local GI/GIT sites; funding sources; and more. The website is hosted by Access Indiana, with IGIC partners hosting sub-sites (www.in.gov/ingisi).

Appendix F: Summary of Statewide GIS Questionnaire

A Statewide GIS Survey was conducted from January – March 2001 to collect baseline information on the status of GIS implementation and framework data in Indiana. The full database and summary of those responses will be made available at the IGIC web site (www.in.gov/ingisi) under the strategic planning sub-page. The following is a summary of the academic sub-survey.

Academic Institution Responses A sub-survey was targeted to gather similar information specific to academic institutions in Indiana. The Survey was posted on The Polis Center web site and linked from the Indiana GIS Initiative web site. A total of ninety-five individuals responded from all disciplines and organizations. Responses were solicited from academic institutions and individuals identified by an investigation of university web sites. A total of 20 individuals responded from academic institutions. Of those, the responses represent the following 16 departments /institutions:

- Ball State University-Dept. of Urban Planning
- Ball State University-Geography
- Indiana Clean Manufacturing Technology and Safe Materials Institute
- Indiana Geological Survey
- Indiana State University
- Indiana University
- Indiana University - Facilities Management
- IU Northwest - NWI Center for Data Analysis
- IU SPEA GIS Laboratory
- IUPUI (?)
- IUPUI-Center for Earth and Environmental Science
- IUPUI-Geography
- IUPUI-The Polis Center
- IUPUI-University Library
- Purdue University
- Vincennes University

The following is a summary of the survey results:
Does your department and/or program offer any of the following? (check all that apply):
- GIS Coursework (7) (BSU-Urban Planning, BSU-Geography, IU-NW, IU-SPEA, IUPUI-Geography, Purdue-Engineering, VU)
- Academic Major in GIS (3) (BSU-Geography, PU-Engineering, VU)
- Academic Minor in GIS (1) (PU-Engineering)
- GIS Concentration (2) (IUPUI-Geography, VU)
- GIS Certificate (3) (BSU-Geography, IUPUI-Geography, VU)
- GIS Specialization (1) (PU-Engineering)
- GIS Masters Degree (3) (IUPUI-Geography, PU-Engineering, BSU-Geography)
- GIS Doctorate Degree (1) (PU-Engineering)
- None (6)

Does your department and/or program offer any of the following **academic courses**? (check all that apply)
- Spatial awareness (2)
- Intro GIS (7)
- Advanced: applications or issues (5)
- Advanced: software specific (4)
- Advanced: spatial analysis (2)
- Other disciplines teaching GIS (2)
- Cartography (4)

- Remote sensing (5)
- Short courses (3)
- Other   (Course modules; Components of the above are in several classes, but no specific class directly towards GIS; CAD)
- None (5)

Does your department and/or program offer any **GIS workshops or other non-academic training**? (select all that apply)
- Introduction to GIS: concepts (6) (BSU-Urban Planning, BSU-Geography, IU-SPEA, IUPUI-Geography, IUPUI-Polis, VU)
- Introduction to GIS: software (4) (BSU-Geography, IU-NW, IUPUI-Polis, VU)
- Advanced GIS: software (2) (BSU-Geography, IUPUI-Polis)
- Advanced GIS: concepts (2) (BSU-Geography, IUPUI-Polis)
- Advanced GIS: applications (2) (BSU-Urban Planning, IUPUI-Polis)
- None (5)

If applicable, describe **your GIS applied research interests/area of expertise**:
- Ball State University-Dept. of Urban Planning
    - o   Implementation for local government.
- Indiana Geological Survey
    - o   The Indiana Geological Survey uses GIS in the study of the geology and mineral and fuel resources of Indiana.
- IU SPEA GIS Laboratory
    - o   Applications of GIS and remote sensing to environmental and natural resources management.
- IUPUI Center for Earth and Environmental Science
    - o   Remote Sensing
    - o   Aerial Photography
    - o   Historic Land Use and Land Use Change
    - o   Geomorphology
    - o   Other spatial, none geographic morphology where GIS is applicable
- IUPUI-The Polis Center –
    - o   Internet GIS
    - o   Metadata
    - o   GIS Standards and Policy
    - o   Community Information Systems
- Vincennes University

If applicable, describe **your GIS theoretical/basic research interests/area of expertise**:
- IUPUI-CEES
    - o   Morphology where GIS is applicable; IE Mapping of internal morphology of bryozoans, and variations in chemical and isotropic data throughout organisms.
- Purdue University
    - o   Remote sensing; spatial modeling; visualization

If applicable, describe **GIS consulting and/or contracting services** that you offer:
- Ball State University-Dept. of Urban Planning
    - o   Implementing GIS for local government
- IUPUI Center for Earth and Environmental Science
    - o   Data production, mostly aerial photography rectification
- IUPUI-The Polis Center
    - o   Full-service GIS consulting and contracting services
- IUPUI-UL
    - o   Metadata creation; data archiving and web access
- Purdue University
    - o   Remote sensing; spatial modeling; visualization

If applicable, describe any **GIS extension services** that you offer:

- Ball State University-Dept. of Urban Planning
  - Training
- IUPUI-The Polis Center
  - Statewide GIS coordination; training; on-site support
- Purdue University
  - Data collection; visualization; digital mapping

If desired, please provide additional comments here:

Purdue University - we are planning to offer some short courses and workshops in GIS in the near future.

Appendix G: Interim Report - Strategic Assessment for a Statewide GIS Clearinghouse and Internet Mapping System

GIS technology has advanced to the point that a distributed statewide GIS is possible through a GIS Clearinghouse and datasets exist to build a data infrastructure for the state. GIS is quickly emerging as a core technology due to its capacity to integrate information from multiple heterogeneous sources. In a distributed enterprise-model, users maintain ownership and control over their data and link to others via the Internet – versus the approach of earlier centralized models that meant cumbersome posting and maintenance of data to a centralized repository. For example, transportation planners could view their data along side of up-to-date population data and environmental data from other agencies - all while the datasets reside on different servers within different agencies. Access over a shared platform using open standards makes sense. A distributed model allows agencies to follow their own agenda, while remaining flexible and conforming to open GIS standards. Enterprise solutions now allow data to "touch" each other in a virtual environment and provides e-government and e-services that were previously unavailable.

Phased Implementation: An Entry Point for Statewide GIS
This Interim Report describes a phased approach to development of a distributed-model statewide GIS and IMS to provide "one stop shopping" to data resources. An accessible statewide system can incorporate data from multiple sources, display these data intelligently, and have the capacity for downloading data. Access to data, and access to information gleaned from those data, will meet the objectives of many organizations to create efficiencies in the access and use of GIS to better serve their respective communities. Through a carefully conceived and executed implementation of a Statewide GIS and IMS, Indiana organizations can:

- Improve knowledge of and access to existing spatial data sets essential to their business
- Enable use of existing data for critical infrastructure and resource planning
- Develop efficiencies in the way they offer services
- Improve the use of resources and the sharing of data across organizations
- Reduce data and application redundancy
- Reduce data and application incompatibility
- Enhance decision making based on spatial analysis
- Provide clients with useful maps
- Demonstrate spatially their programs that impact customers
- Develop enhanced applications and custom e-services

A phased approach enables the incremental funding by organizations that have been previously unable to support full-scale implementation. Phases can occur sequentially or in parallel, and phasing also enables proof-of-concept testing and demonstration projects that fit within a broad construct. Each phase builds off the previous and is considerate of how it fits within the "big-picture".

The first phase of this project, a "Strategic Assessment, System Planning and Design" is currently underway and is funded by the Indiana Land Resources Council. The Polis Center at IUPUI is conducting the study. This first phase will provide information to design a cornerstone project that will deliver existing framework GIS data and demonstrate the utility of a statewide IMS. Over the next two years, IGIC will coordinate the Clearinghouse project to develop, test and implement a distributed enterprise model providing the ability to reach out and "touch" others data – giving organizations the power to share their data while acting as the primary custodians of their data – storing, maintaining, and providing access-level security. Phases will be developed that add project specific datasets and custom applications to address issues such as water quality management and transportation safety. Each phase will require partnerships of various organizations to support implementation. Additional partnerships to support full implementation will be solicited at all stages.

The next phase will begin with delivering "out-of-the-box" applications for browsing, identifying and downloading data sets. These initial phases implement the core technology for testing and demonstration, for example through a "cornerstone" project, while future phases extend those capabilities to a distributed, enterprise model. In the future, sophisticated applications such as tabular and spatial analysis, reporting and custom mapping, as well as the capability to handle future integration of value-added services and e-commerce may be developed. An important result of the enterprise model is that it enables e-government services that rely on spatial data for their functionality and have been otherwise unavailable.

Appendix H: IGIC Statewide GIS Standards and Recommendations

The goal of the Standards and Recommendations Committee is to provide recommendations and guidelines to Indiana GIS user communities to facilitate the collection, maintenance and analysis of GIS data; and, to communicate existing federal, state and local data standards. The Data Standards and Recommendation Committee will not recommend software, hardware or operating systems. Furthermore, the Data Standards and Recommendation Committee will not impose any of these recommendations and guidelines as a requirement on any GIS user community.

The Indiana Geographic Information Council has ratified the "Metadata Standard" (below). *"Projections, Datum, and Coordinate Systems"* and *"Map Scale and Accuracy"* standards are currently released for public review and comment, and are anticipated to be ratified October 20, 2001. http://www.in.us/ingisi/committees/standards_and_recommendations.html

Metadata Standard
(Ratified by the Indiana Geographic Information Council 7/20/01)
The goal of the Standards and Recommendations Committee is to provide recommendations and guidelines to Indiana GIS user communities to facilitate the collection, maintenance and analysis of GIS data; and, to communicate existing federal, state and local data standards. The Data Standards and Recommendation Committee will not recommend software, hardware or operating systems. Furthermore, the Data Standards and Recommendation Committee will not impose any of these recommendations and guidelines as a requirement on any GIS user community.

What is Metadata?
Metadata – *data documentation* – are a critical component of any GIS project, essential for data sharing, and absolutely vital for protecting an organizations investment in data. The major uses of metadata are:
- to help organize and maintain an organizations internal investment in their GIS data,
- to provide information about an organization's data holdings to data catalogs, clearinghouses, and brokerages, and
- to provide information to process and interpret data received through a transfer from an external source.

Metadata document the content and quality of GIS and other geospatial data, such as databases, maps, and documents. Much like an electronic card catalog for books, there are standards for what gets documented, and how to do it. Metadata for GIS documents who created and owns the data, what the data represent, why it was created, where the data represent geographically, when the data were created and the time period they represent, and how the data was created.

By using either of the following recommendations for metadata, you can document your data holdings to protect your data investment, and share metadata with others by posting your metadata to Indiana's Geographic Information Catalog (http://atlas.ulib.iupui.edu/fgdc_node/). The metadata standards listed below do not specify what software to use to develop your metadata – there are several free and commercial software packages available to assist you in metadata development. The Indiana GIS Initiative Metadata Toolkit (www.state.in.us/ingisi/) can provide on-line resources to assist in this process.

Recommendation
The Federal Geographic Data Committee (FGDC) has adopted a standard for metadata called the Content Standard for Digital Geospatial Metadata. The Indiana Geographic Information Council has developed a two-tier recommendation based on users ability to conform with the federal standard.

What is the difference between Tier One and Tier Two?
Tier One
The first tier recommendation for metadata is to develop fully FGDC compliant metadata by completing all of the "mandatory" and "mandatory if applicable" sections of the Content Standard for Digital Geospatial Metadata (http://www.fgdc.gov/metadata/contstan.html). This is strongly recommended by the Indiana Geographic Information Council and **may be necessary if you must comply with federal metadata standards**.

OBJECTIVES:
The objectives of the standard are to provide a common set of terminology and definitions for the documentation of digital geospatial data.

SCOPE:
Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure," was signed on April 11, 1994, by President William Clinton. Section 3, Development of a National Geospatial Data Clearinghouse, paragraph (b) states: "Standardized Documentation of Data, ... each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC, and make that standardized documentation electronically accessible to the Clearinghouse network." This standard is the data documentation standard referenced in the executive order.

The standard was developed from the perspective of defining the information required by a prospective user to determine the availability of a set of geospatial data, to determine the fitness the set of geospatial data for an intended use, to determine the means of accessing the set of geospatial data, and to successfully transfer the set of geospatial data. As such, the standard

establishes the names of data elements and compound elements to be used for these purposes, the definitions of these data elements and compound elements, and information about the values that are to be provided for the data elements. The standard does not specify the means by which this information is organized in a computer system or in a data transfer, nor the means by which this information is transmitted, communicated, or presented to the user.

In addition to use by the Federal Government, the FGDC invites and encourages organizations and persons from State, local, and tribal governments, the private sector, and non-profit organizations to use the standard to document their geospatial data.

Tier Two
The Indiana Geographic Information Council recognizes that in some instances resources of State, local, and tribal governments, the private sector, and non-profit organizations may be limited such that full documentation is not possible. In such cases, the Indiana Metadata Profile (Attachment A) is a second tier recommendation for metadata development. The Indiana Metadata Profile is minimally compliant with the FGDC Content Standard for Digital Geospatial Metadata, and additionally includes information from the standard relevant to Indiana users, such as distribution information.

Please note that while both tiers of metadata meet at least the minimum requirements for the Content Standard for Digital Geospatial Metadata, the Indiana Geographic Information Council encourages the use of the Tier One metadata recommendation.

Indiana GIS Metadata Profile

☺ THE **INDIANA GEOGRAPHIC INFORMATION COUNCIL RECOMMENDS FULLY COMPLIANT METADATA** in accordance to the FGDC Content Standard for Digital Geospatial Metadata. The Indiana GIS Metadata Profile provides guidance for users who cannot otherwise develop fully compliant metadata. For more examples, you can preview the Indiana GIS Initiative Metadata Tool Kit (www.state.in.us/ingisi) for instructions on completing fully compliant metadata. Contact The Polis Center at IUPUI regarding training opportunities 317-274-2458.

☺ DON'T BE OVERWHELMED BY THIS WORKSHEET: The point is to get you started with documenting your data set.

☺ THIS WORKSHEET REPRESENTS SOME BARE-BONES INFORMATION needed to produce a sharable/searchable/retrievable metadata catalog entry. If you wish to document more information about your data set(s), please make a note of it – I can almost guarantee there's a place for it in the fully-compliant metadata.

☺ THIS IS ONLY A WORKSHEET: the information you provide here can be transferred to an FGDC computer format at a later date.

Name of an organization or individual that developed the data set

8.1 Originator of the data set: ❑ Unknown *or*

Free date

8.2 Publication Date: ❑ Unknown ❑ Unpublished *or*

The name by which the data set is known

8.4 Title: _____

8.6 Geodata Presentation Form: ❑ Atlas ❑ Audio ❑ Database ❑ Diagram ❑ Document ❑ Globe ❑ Graph ❑ Image ❑ Map ❑ Model ❑ Multimedia presentation ❑ Profile ❑ Remote-sensing image ❑ Section ❑ Spreadsheet ❑ Table ❑ Video ❑ View ❑ Other _____

Use a URL to hyperlink to a data set for Internet download, or link to your organizations web page, if applicable

8.7 Online linkage: _____

A brief narrative summary of the data set

1.2.1 Abstract:
_____

A summary of the intentions with which the data set was developed

1.2.2 Purpose: ❑ Not Applicable ❑ Unknown *or*
_____

Single date/time OR multiple dates/times OR range of dates/times	
1.3 Time period of content:	1.4.1 Progress: ❑ Complete ❑ In work ❑ Planned

"Ground condition" is used for primary data sources such as air photos, field collected data and remote sensing; "Publication date" is used for secondary sources of data

1.3.1 Currency of the data: ❑ Ground Condition ❑ Publication Date

1.4.2 Maintenance and update frequency: ❑ Continually ❑ Daily ❑ Weekly ❑ Monthly ❑ Annually ❑ Unknown ❑ As Needed ❑ Irregular ❑ None Planned

1.5 Spatial extent of the data set: *Expressed by latitude and longitude values*	1.6.1.1 Theme keyword thesaurus:
West Bounding Coordinate_____ *or* ❑___**-88.25**___ *-180.0 <= West Bounding Coordinate < 180.0 Indiana*	❑ None *or* _____
East Bounding Coordinate_____ *or* ❑___**-84.56**___ *-180.0 <= East Bounding Coordinate <= 180.0 Indiana*	1.6.1.2 Theme keywords: _____
North Bounding Coordinate_____ *or* ❑__**41.92**__ *-90.0 <= North Bounding Coordinate <= 90.0 Indiana*	_____ _____
South Bounding Coordinate_____ *or* ❑__**37.59**__ *-90.0 <= South Bounding Coordinate <= 90.0 Indiana*	_____

Restrictions and legal prerequisites for accessing the data set. These include any access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the data set.

1.7 Access Constraints: ❑ None *or* _____

Restrictions and legal prerequisites for using the data set after access is granted. These include any access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the data set.

1.8 Use Constraints: ❏ None *or* _____

The denominator of the representative fraction on a map (for example, on a 1:24,000-scale map, the Source Scale Denominator is 24000)

2.5.1.2 Source Scale: ❏ Not Applicable ❏ Unknown ❏ 1:_____

The estimate of the accuracy of the horizontal coordinate measurements expressed in (ground) meters

2.4.1.2.1 Horizontal Positional Accuracy Value:

❏ Not Applicable ❏ Unknown ❏_____

An estimate of the accuracy of the vertical coordinate measurements in the data set expressed in (ground) meters

2.4.2.2.1 Vertical Positional Accuracy Value:

❏ Not Applicable ❏ Unknown ❏_____

4.1.4.1 Horizontal Datum Name:
❏ Not Applicable ❏ Unknown
❏ North American Datum of 1927 (NAD27)
❏ North American Datum of 1983 (NAD83)

4.2.1.1 Altitude (vertical) Datum Name:
❏ Not Applicable ❏ Unknown
❏ National Geodetic Vertical Datum of 1929 (NGVD29)
❏ North American Vertical Datum of 1988 (NAVD88)

For maps, what map projection or grid coordinate system are you using?

4.1.1.1 Map Projection Name:

5.1.1.1 Entity Type: ❏ Point ❏ Line ❏ Polygon ❏ Raster ❏ Route ❏ Grid ❏ Other _____

Contact person name AND/OR Organization   *Position (if applicable)*

6.1 Distributor:

Street	*City*	*State*	*Zip code*

Phone	*Fax (if applicable)*	*E-mail (if applicable*

6.3 Distribution Liability: ❏ None *or* _____

In what formats are the data available? The format version is important to the user (eg., ArcInfor v. 7.0.4 export).
Note more information can be provided with more complete metadata.

6.4.2.1.1 Digital Form -- Format Name:

Are the data available for free or is there an associated cost?

6.4.3 Fees: ❏ None *or* _____

The date that the metadata were created or last updated

7.1 Metadata Date:

Contact person name AND/OR Organization   *Position (if applicable)*

7.4 Metadata Contact:

Street	*City*	*State*	*Zip code*

Phone	*Fax (if applicable)*	*E-mail (if applicable*

7.5 Metadata Standard: **FGDC Content Standard for Digital Geospatial Metadata**

7.6 Metadata Standard Version: **2.0**

Appendix I: Review of Other States GIS Coordination Efforts
A Report of the Indiana Geographic Information Council Data Sharing Committee

Alabama

The state of Alabama is in the process of developing their own data warehouse called Executive Information System/Data Warehouse. No other documentation was available.

Arizona

The University of Arizona Library has a mission to promote the dissemination of information. The Clearinghouse is one effort to address this need. In the past two years, the hardware, software, and telecommunications needed to create and distribute an image database advanced to the degree that interest in image databases is becoming widespread. Technological developments have also raised new interest to create image databases for the preservation of rare and special collections. At the time the Clearinghouse was created, it was hoped that it would prove to be a useful contribution. Although others have helped fine tune the data model and construct the WAIS index, the Clearinghouse is the result of the efforts of one individual. Crucial activities such as entering data, creating links, editorial functions, soliciting participation, and implementing new features continue to reside with this individual. This raises a continuing support issue: there is the risk that if this person leaves the University of Arizona Library, the Clearinghouse will not continue to be supported. The Clearinghouse has relied on messages posted to selected listservs and newgroups inviting subscribers to submit information on their projects. On occasion, an image database is found that looks appropriate for listing in the Clearinghouse and its developer is contacted. The Clearinghouse is one of many directories with multiple files on the U. of Arizona Library's Web server. The information is backed up regularly to tape according to standard procedures. Address to the Web site: http://dizzy.library.arizona.edu/images/image_projects.html

Arkansas

Arkansas has a geodata warehouse (SWAG) managed by the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas. CAST is one of 6 National Centers for Resource Innovation and is congressionally funded. The University of Arkansas supports and encourages the SWAG initiative. SWAG's partners include Oracle, Intergraph and Sun. http://www.cast.uark.edu/projects/SWAG/index.html. The data is managed using an Oracle Enterprise Server 8 database and is served in a nonproprietary format using a UNIX (SUN Enterprise 5000) server. SWAG claims it is the first OpenGIS FGDC compliant clearinghouse that will serve terabytes of geospatial data.

California

The California Environmental Information Catalog is an online directory for reporting and discovery of information resources for California. Participants include cities, counties, utilities, state and federal agencies, private businesses and academic institutions that have spatial and other types of data resources. The Catalog has been developed through a collaborative effort with the California Geographic Information Association, California Environmental Resources Evaluation System, and the Federal Geographic Data Committee. Data catalogers include cities, counties, state and federal agencies, private businesses, non-profits, and academic institutions. Regional

data-sharing efforts funded under FGDC's Cooperative Agreements Program, such as the Central Coast Spatial Data Clearinghouse, are using the Catalog for their metadata development and as their NSDI clearinghouse node. For more information about how your organization can use the Catalog, see the online tutorial at http://ceres.ca.gov/catalog/help.html or contact CERES at (916) 653-8614 or metadata@ceres.ca.gov. Address to the Web site: http://ceres.ca.gov/catalog/index.html.

Connecticut
Map And Geographic Information Center, University of Connecticut, Homer Babbidge Library houses data delivery services.

Delaware
In 1998 a statewide planning database/GIS was established, administered by the Office of State Planning Coordination. The relevant legislation dictates that "all source data and metadata relating directly or indirectly to planning issues…maintained or prepared by state agencies, state supported agencies or developed through state funded projects, will be made available to planning agencies at the state, regional and local levels and to the public." All state agencies "shall comply in developing and maintaining the Delaware inventory of data bases, maps, graphic representations, and other appropriate information relating to planning issues," are required to submit metadata to the inventory, and provide an annual update of such documentation. The Delaware Geographic Data Committee (DGDC), was also created coordinate among GIS users at all levels of government, develop of a metadata system, coordinate the maintenance of data sets, and encourage access to the data. The University of Delaware, Research Data Management Services maintains Delaware's NSDI Clearinghouse Node. The clearinghouse welcomes and encourages contributions from all data producers– public, private, and individuals. The Clearinghouse includes a searchable database of FGDC compliant metadata, contributed primarily by State and local government agencies. The Clearinghouse also maintains links to other Delaware spatial data collections and resources.

Florida
There is a Florida Geographic Board website http://als.dms.state.fl.us. Their function as stated in their mission statement is to facilitate in the identification, coordination, collection and sharing of geographic information among federal, state, and local agencies and the private sector. The board shall develop solutions, policies, and standards to increase the value and usefulness of geographic information concerning Florida. At this point in time though, it appears that third party vendors are posting Florida's data to the web, for free or otherwise.

Georgia
Georgia uses the clearinghouse method of sharing data, which is open to all. The Georgia Spatial Data Structure (GSDI) exists by the support and participation of the Stakeholders. Stakeholders are from both public and private sectors. There does not appear to be a cost to participate, but there is a governing body GISCC (GIS Coordinating Committee). The web address for this is http://www.gis.state.ga.us.

Hawaii

University of Hawaii at Manoa Microelectromechanical Systems (MEMS). MEMS Clearinghouse is an expert Source for MicroElectroMechanical Systems Information and Discussion. The MEMS Clearinghouse was established to be a repository of information about MicroElectroMechanical Systems (MEMS) and to foster communication and the rapid sharing of information within the MEMS community. It is run by the CHIME Project of the University of Southern California's Information Sciences Institute, under funding from the Defense Advanced Research Projects Agency's Electronics Technology Office (ETO), as part of the DARPA MEMS Program.   This is a high-level goal / vision is to add value to the MEMS Community by acting as a focal point for information and its rapid exchange, stimulating rapid progress, providing dynamically evolving valuable and responsive services, and increasing the cohesiveness of the Community. Address to the Web site: http://www-ee.eng.hawaii.edu/mems/links.html

Illinois

Illinois has a Natural Resources Geospatial Data Clearinghouse http://www.isgs.uiuc.edu/nsdihome/webdocs/apart.html. It is a cooperative effort of the following 8 state agencies. Illinois DNR has worked to meet the demand for geospatial data by direct distribution of data to end users, in cooperative projects with other organizations, through significant contributions of digital data to multi-agency CD-ROM compilations, and by taking prominent roles on the Illinois Geographic Information System (IGIS) Committee. The Illinois DNR has numerous individual GIS data sets (most in Arc/Info format) available for analytical use.

Information about the Illinois Geographic Information Council is at: http://dnr.state.il.us/orep/ilgic/toc.htm. Members of the Illinois GIS Council include the president of the University of Illinois, a state senator, 2 state representatives and the director of DNR. There is also a Chicago Region Clearinghouse Cooperative for the greater Chicago Region, a multi-organizational spatial data clearinghouse, (including participants from Northwest Indiana) http://www.cagis.uic.edu/Clearing/. The node is located at the University of Illinois at Chicago. Anyone can participate and provide data provided data complies with the FGDC standards.

Iowa

Iowa's lead entity for GI/GIT in state government is the Information Technology Department. It houses the staff and clearinghouse for statewide GIS activities for the IGIC. http://www.gis.state.ia.us/   (uses IMS). The Department of Natural Resources coordinates the maintenance of this information. Their library of GIS data is located at: http://www.igsb.uiowa.edu/nrgis/gishome.htm. There is a pilot project of the USDA Natural Resources Conservation Service in cooperation with Iowa State University and the Massachusetts Institute of Technology (MIT). The purpose of this project is to evaluate new methods of distributing geographically referenced digital data via the world wide web (http://ortho.gis.state.ia.us) and for use with GIS applications. The website currently serves 1:24,000-scale and 1:100,000-scale USGS Digital Raster Graphics (DRGs) of Iowa, and 38 counties of Digital Orthophoto Quarter Quads (DOQQs). The project is near completion and will be moved to Iowa's Geospatial Clearinghouse, but currently is on an MIT server.

Maryland
The Maryland State Government Geographic Information Coordinating Committee (MSGIC) serves as the primary coordinator for GIS in state government in the absence of a formal coordination office. Each state agency in Maryland is the custodian of its own data, and develops its own policy for data distribution. State agencies maintain copyright control of their data and charge a reasonable distribution fee. The Maryland State Government Article provides the ability to recover costs associated with production and distribution of spatial data products, clearly distinguishing spatial data requests from public information act requests. State agencies coordinate release of their GIS data in a consistent format. The Office of Technology provided a grant in 1997 to provide all state-produced data to county and municipal planning agencies, regional planning councils, and several non-profit organizations. Six private vendors have been approved to redistribute these data in a partnership between the public and private sectors. This so-called Technology Toolbox provides "prepackaged" data for GIS, and connection to existing information systems. While no state agency currently maintains an NSDI clearinghouse node, three FGDC grant requests were approved in 1999 to install nodes at Towson University, the University of Maryland's Baltimore Campus, and Salisbury State University.

Missouri
Missouri has a Geographic Resources Center (GRC), which is housed at the Geography Department of the University of Missouri. The Missouri GIS Advisory Committee is the leading coordination body for GIT in Missouri. Support for this group is provided by the Missouri Spatial Data Information Service (MSDIS), a state-funded center located at the University of Missouri with the purpose of providing archival and distribution services for digital GI to the many users in Missouri.

In 1995 the Missouri state legislature authorized and funded $158,000 to develop a clearinghouse. Funding was organized through a line item within the University of Missouri - Columbia's FY95 budget, specifically ear-marked for the creation of a State Spatial Data Center within the GRC.

The Missouri Spatial Data Information Service provides geographic information systems and census data about the state of Missouri to the public by way of anonymous FTP and the World Wide Web site. MSDIS is located within the Department of Geography of the University of Missouri – Columbia at http://msdis.missouri.edu/ .
Missouri GIS Advisory Committee web address is http://msdis.missouri.edu/mgisac/

New Mexico
The SouthWestern Automated Clearing-House Association (SWACHA) data warehouse. Information is available to SWACHA members only.   Membership is open to financial institutions, for-profit businesses, non-profit organizations, government agencies and individuals. SWACHA is a trade association formed in the early 1970's by leading financial institutions in the states of Texas, New Mexico and Louisiana. Today, the Association has approximately 1,000 members, including financial institutions, businesses, government agencies and professionals.

SWACHA operates under the direction of a member-elected board of directors and is assisted by

a number of advisory committees populated by senior and executive officers of member organizations. Address to the Web site: http://www.nmenv.state.nm.us.

North Carolina
NCGDC stands for North Carolina Geographic Data Clearinghouse and is open to public and private entities. The main source of information found on the clearinghouse is metadata that is FGDC compliant, but it may also serve background information, reference maps, and dataset graphics. Actual data is served through the metadata. The North Carolina Center for Geographic Information and Analysis is the host site for metadata. There is no cost to participate in NCGDC. For more information go to http://cgia.cgia.state.nc.us:80.

Pennsylvania
In 1999, the Pennsylvania Geospatial Information Council (PAGIC) was formed to coordinate data development and sharing among public and private sector organizations, local, state, and federal agencies. Each state member is required to document and provide information about all data that it collects or produces, and develop a plan and procedures to make the data available to the public. In addition, each agency must check the clearinghouse to determine if the information has already been collected by others, or if cooperative efforts are possible, before expending state or federal funds to collect or produce new data. The Pennsylvania Geospatial Data Clearinghouse (PAGDC) became accessible via the Internet in 1997, and now serves as Pennsylvania's NSDI node. The data and services are free to all users. Services include metadata development, metadata training, data storage, and data distribution. The Pennsylvania Spatial Data Access system (PASDA) is Pennsylvania's official geospatial information clearinghouse and the Commonwealth's node on the National Spatial Data Infrastructure (NSDI). PASDA was developed as a service to the citizens, governments, and businesses of the Commonwealth. PASDA is a collaborative project of the Pennsylvania State University and the Pennsylvania Geospatial Information Council. Funding is provided by the Pennsylvania Department of Environmental Protection.

South Carolina
The only clearinghouse found was for the South Carolina Department of Natural Resources. This site offers only data about natural resources on a statewide basis. The website does not include metadata at this point in time. For more information go to http://www.dnr.state.sc.us/gisdata/index. They are in the process of building a statewide clearinghouse according to the Information Resource Council Action Plan.

Texas
Texas is also a member of the SouthWestern Automated Clearing-House Association SWACHA. Address to the Web site: http://www.nmenv.state.nm.us. Texas A&M University-Kingsville Data Warehouse. The Office of Institutional Research is undertaking a project to design a data warehouse for the university. Address to the Web site: http://www.oirsp.tamuk.edu/Projects/DataWarehouse/

Virginia

The Virginia Geographic Information Network (VGIN) Division is charged with fostering creative utilization of GIS and overseeing the development of a catalog of GIS data available in the Commonwealth. The roles and authority of the division and coordinator are among the strongest of any state coordination entity in the United States. Once VGIN-proposed guidelines and procedures for management of GIS are adopted by the Secretary of Technology, then all state and non-state agencies receiving funding in the state budget must comply with them. To date, these policies include mandatory development and annual review of metadata for all databases (geographic or otherwise) developed after July 1997, the authority to require a unified GIS for a locality, and requiring regional planning commissions to participate in a statewide GIS. The VGIN is currently developing a statewide basemap and spatial data library consisting of web-based spatial data products and/or services, developed with state agency and higher education partners. In the distributed Spatial Data Library plan each VGIN partner will develop and maintain only the application-specific data critical to their operations. These data resources will be linked to provide partners with access to all of the distributed library's data assets. A metadata clearinghouse is being developed to document the holdings of the Spatial Data Library. Member agencies and users of the statewide GIS sign a disclaimer and copyright agreement.

West Virginia
There is no formalized, official data distribution policy for the state, outside of FOIA and state public records statutes. Several state agencies are establishing websites with browser and ftp capabilities. Several counties and municipalities are trying to recover their costs by selling their data. The West Virginia GIS Technical Steering Committee is the only group that is active in coordinating activities in the state. In 1998, an NSDI Clearinghouse node was established at the GIS Technical Center at WVU. On April 23 1998, Governor Cecil Underwood dedicated the West Virginia State Geographic Information Systems (GIS) Technical Center in new laboratory facilities in the Department of Geology and Geography at West Virginia University. The State GIS Technical Center was established under Executive Order No. 4-93 in November 1993, which specified that the Technical Center should provide technical support services to support the development and operation of GIS in West Virginia. Specifically, the Technical Center is mandated to prepare database designs, develop vital base map layers accessible to all GIS constituencies in the State, maintain and update these GIS layers over time, reach out to GIS users to design and develop their applications, and assist in the promotion of GIS technology to local, regional and state government. Several major coal companies, forest product companies, and utility companies use a mapping system based on enhanced TIGER data, but the group is working with the GIS Coordinator and other state agencies to improve accuracy using more detailed data from both government and private sector sources.

Wisconsin
The Wisconsin Land Information Clearinghouse (WISCLINC) is a gateway to geospatial data and metadata, related land and reference information, and the Wisconsin agencies which produce or maintain these items. WISCLINC is also a registered node in the web of NSDI clearinghouses. http://wisclinc.state.wi.us/. WISCLINC was established under a pilot project carried out by the Wisconsin State Cartographer's Office (SCO) (located within the University of Wisconsin) in 1994-95.   http://feature.geography.wisc.edu/sco/sco.html. WISCLINC is seen as a "front door"

to geospatial data discovery and dissemination in Wisconsin. This function is served primarily by the continued maintenance and expansion of the NSDI Clearinghouse node, as well as the posting of news items, links to relevant agencies and on-line resources, and instructional information on metadata and data searching. WISCLINC is intended to be a starting point and navigation aid to those searching for or involved with spatial data in Wisconsin. The State Cartographer's Office serves as the custodian for WISCLINC.

The Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND) is a voluntary partnership of public and private entities which has the goal of producing a statewide, seamless, consistent GIS data layer. It was formed as a result of the GAP initiative. WISCLAND continues as a mechanism for cooperative funding and development of land data. http://wisclinc.state.wi.us/datadisc/wimeta_browser.html. Wisconsin has extensive GIS and remote sensing efforts at the DNR and University of Wisconsin-Madison.

Appendix J: Implementing a New Paradigm - An Outcome of OMB's Information Initiative "Collecting Information in the Information Age"

Background:

Governments at all levels (federal, state, local, and tribal) manage complex natural and social environments. They build streets, schools and airports; protect public health and the environment; and provide for public safety and disaster relief. Legislative bodies, executive branch decision-makers, and private sector businesses require accurate information about the communities, people, businesses and habitats affecting and affected by their decisions. This information about buildings, forests, waterways, weather, crime patterns, disease outbreaks, and traffic patterns is spatial data.

Spatial data has long been part of government and business processes, but its value and ubiquity are only now becoming universally recognized because of new technology that can handle large volumes of data and interoperability standards. Approximately 80% of all data used in business and government has a locational component. Much of this information has been developed over the past 30 years to serve narrow parochial missions (such as repairing streets, assessing property taxes, or dispatching emergency services). Little of it is integrated and anchored to other geographic information. With the Internet's distributed architecture and the Web's browsing and display capability, users inside and outside of government are demanding increased data pooling and sharing, based on market-driven interoperability standards.

There are a vast number of applications for geospatial data that would help Government make better decisions, conduct better operations, provide better customer service, and be more accountable. Banks, utilities, insurance companies, police departments, and other public and private sector organizations increasingly find new uses for location-based services, remote sensing, GPS and other technologies to serve citizens and customers better.

The Federal Government has a lead role to play in coordinating the development, access and use of spatial information. This role requires Federal agencies to exercise leadership and cooperate with State, Local and Tribal authorities, the private sector, and academia to develop a coordinated "National Spatial Data Infrastructure" (NSDI). An NSDI integrated across jurisdictions can be a key component for enabling E-Government and E-Commerce to flourish.

Historically, government budget authorities treated spatial data and its supporting infrastructure as data processing expenses to be funded from current year operating budgets. However, as spatial applications began to extend into nearly every aspect of our lives, they began to cut across organization lines and exceed the capacities of single department missions and budgets. Like the national road system, each level of government has an appropriate role, as does the private sector. No one agency or level or government can or should build or fund its spatial data and decision

support needs alone.

Spatial Infrastructure has become an essential part of the nation's capital infrastructure. Despite this fact, no widespread capital financing model for GIS has emerged. Spatial infrastructure, an intergovernmental capital asset, continues to be funded by "stove-piped" annual appropriations. This mismatch between the need for long-term capital financing and the current reliance on annual appropriations remains one of the chief obstacles to the attainment of the NSDI.

Government entities at all levels, as well as private sector organizations, are making major investments in spatial data needed for operations. They fulfill governmental data mandates supporting essential public services and policy goals (such as clean air and water, efficient transportation, safe streets, emergency relief, and urban and rural sustainability). The costs of data stewardship for municipalities, water districts, and other local, state and tribal government organizations are significant. The challenge for all levels of government is to develop common criteria for spatial infrastructure investments, align annual public and private budget cycles more effectively, and pool and leverage spatial investments.

In addition, if spatial data is an important part of the nation's information infrastructure, it should be constructed, maintained, renewed, and budgeted for over its long-term life cycle as any other critical capital asset. Alternative financing mechanisms to the current annual appropriation "stovepipes" are needed.

A New Paradigm Emerges

We have an historic opportunity for all levels of government, and the private and nonprofit sectors to establish a new paradigm.
- Partnerships among State, local, Tribal, and Federal authorities, and the private sector could help share costs by capturing economies of scale and aligning their pooled capital investments in standardized spatial data layers and content.
- Mechanisms for allocating and sharing data collections and costs efficiently effectively and fairly would encourage data development and stewardship at the right place by the right organization.
- All investors in spatial infrastructure should use common criteria when investing in spatial infrastructure. Criteria would include Federal and market standards for interoperability, data format, and metadata and content standards, along with principles for public access, data security, privacy and other goals affecting governmental and business data.
- Creative financing outside of government appropriation cycles, such as infrastructure bonds or other financial products, could supplement and de-politicize the funding process, providing the liquidity to deploy and sustain shared spatial infrastructure.

In this paradigm, no Federal program or initiative needs to dictate policy to States, local, and tribal jurisdictions, or the private sector, for the NSDI to develop. Rather, all parties collaborate as partners in consortia operating in states, regions, industries or interest groups. This strategy implements the NSDI by aligning spatial infrastructure investments using common investment criteria.

Implementing the New Paradigm

As part of OMB's Information Initiative "Collecting Information in the Information Age", OMB recently completed a series of public Roundtables exploring how to improve the quality of the spatial data Government collects while minimizing the collection burden. Dialogue focused on the need to overcome the financial and institutional barriers to the sharing of spatial information among Federal, State, local, and tribal entities, and the private sector. In response to participants' recommendations, OMB (in cooperation with the Federal Geographic Data Committee (FGDC), National Performance Review (NPR), Council for Excellence in Government, Urban Logic, and other public and private sector stakeholders) has invited the spatial data community to begin several implementation actions.

- Implementation Teams (I-Teams). I-Teams will organize institutions in their state or region to build statewide portions of the NSDI. Already, New Jersey, Kentucky, North Carolina, Oregon and Metropolitan New York City have committed to establish an I-Team. Each Team, aligning the needs and resources of its State, local, tribal, Federal, and private sector partners, will prepare a comprehensive plan for compiling, maintaining, and financing spatial infrastructure in its Team area. It will identify the needs and responsibilities of the partners, align and leverage resources, and establish detailed timetables and performance measures.

- A Federal Partners Team. Consisting of senior officials of OMB, FGDC, USGS, NOS/NGS, Census, DOT, BLM, NRCS, and EPA, and other interested agencies. The Federal Partners Team will focus Federal agency efforts, respond to and coordinate with I-Teams, and explore new alternatives to develop needed standards

- A Financing Solutions Team (FSTeam). The FSTeam will identify and recommend intergovernmental and public-private financing alternatives to support the NSDI and the I-Teams.

- A Technology Advisory Group (TAG). Open to all vendors and led by the Open GIS Consortium, TAG will be a resource for I-Teams. It will keep I-Teams and Federal Partners informed of technology innovations and be available to solve common technology challenges. By working with I-Teams to develop and test new products and solutions, TAG will accelerate dissemination of knowledge of the substance and process of building interoperable networks and open systems. TAG also will help the FSTeam use standards to develop strategies for procurement, budgeting and capital pooling.

The Financing Solutions Team

The FSTeam will act as investment advisors to the I-Teams and the Federal Partners. It will research and structure ways to improve how spatial infrastructure investments originate, perform and align.

Make A Business Case. The FSTeam will develop a business case, value proposition and financing options for the I-Teams and Federal Partners to use in preparing their working plans and

budget proposals. It will help the geospatial community to explain to legislative bodies the benefits of aligning investments to achieve the NSDI.

Explore Better Use of Existing Appropriations Structure. Currently, almost all spatial information budget processing is annual. The FSTeam will explore better ways to fund spatial infrastructure investments by aligning and optimizing appropriations, budget, and procurement cycles at all levels of government, including interagency and cross-cutting mechanisms. It will analyze cash flows and returns on investment, and compare costs and benefits. It will develop common investment criteria and explore ways to pool and leverage spatial investments.

Suggest New Funding Mechanisms.   The FSTeam will use the cash flows, preliminary investment criteria and other results generated by its research and work to design sustainable capital financing options, such as infrastructure bonds or revolving funds. In the case of other national infrastructure and community development activities (such as roads, housing stock, airports, and small business development) the Federal government has used financial intermediaries (such as state bond banks, Fannie Mae, Community Development Corporations, and Small Business Investment Companies) to pool and administer local public and private resources through national investment criteria.

Electronic meeting support, knowledge management and other Web-based collaboration tools will be available to members of the FSTeam. This should minimize the need for face-to-face meetings, conserve the valuable time of its distinguished members, and begin the process of creating a public and private financing toolkit.

Legislation or executive guidance may be needed to authorize specific plan elements (for instance, public and private financial incentives that support the long-term sustainability and value proposition of the NSDI). In such cases, the FSTeam will provide the I-Teams and Federal Partners with suggestions for legislation, executive guidance and supporting documentation reflecting the knowledge of all Teams.

Appendix K: NSGIC Fees for Data POC Web Discussion

The following is an informal ListServ discussion on the subject of fees for data and how states are approaching this topic. Each respondent is the respective state's NSGIC contact and/or state/statewide GIS coordinator.

Fees for Data Discussion May/2001

Question initiated by Indiana

Please respond to jsaligoe@iupui.edu
To: NSGIC_STATEREPS-L@topica.com
cc:
Subject: fees for data?

Are there any states that are using cost-recovery models for making data available externally via the Internet, such as enhanced access fees or convenience fees? We (Indiana) have examples of this at county levels with varying levels of success and would like to consider any other states experience in this arena. If you have had experience with this, I'd very much like to know about its impact on distributing state data, success or failure of such efforts, and any details documenting the program (organizational structure, determining fees, determining what data qualify for fees, etc.). Thanks in advance for your thoughts! Jill

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Utah's Response
In Utah, for over twenty years, we have been actively trying to implement the use of GIS technology across all sectors of government as well as universities, the private sector, and non-profit public-interest groups. One of the easiest ways to facilitate that goal is to make data easily accessible and free of charge. We believe that a greater public good achieved in that way than to sell government data that tax payers have already paid for once. - Dennis Goreham

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Maine's Response
Maine deals with this in much the same way as Utah and we also feel that this has led to broader use of GIS. This philosophy also encourages people to use the best available data instead of settling for less accurate data if faced with fees for the good stuff.

We sell some enhanced data products (CDs), but sales are very low because data can be downloaded for free from our website. - Dan

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Pennsylvania's Response
PA also tends to make data free, with some exceptions (e.g. oil and gas data). - Jay

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Hawaii's Response

You can add Hawaii to the list of states providing GIS data free-of-charge over the Internet (www.hawaii.gov/dbedt/gis). What I find amazing is that we have been averaging over 30,000 hits/month since we started doing this. I don't know how people have found our site, but given the fact that "GIS" is not a widely recognized technology in Hawaii, I suspect that a good portion of these numbers are coming from outside the State. - Craig

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Oregon's Response

I believe Texas and Alaska have statutory authority to charge for electronic products and services, but not for raw data. Ohio may, as well. Kansas has a unique situation with their Information Network of Kansas (INK) that has specific authority to recover costs. I believe there may be some statutory basis for charging for data access costs in CA, AZ, IA, KY, and WA. Not in OR, however. I thought ic-36-1-3-8(6) allowed for service or user fees in IN. Cy Smith

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Washington's Response

For your information there is cost recovery for data occurring in Oregon at least at the local or COG level. The best example is Portland Metro's GIS program which is one of the biggest & oldest & well funded GIS programs in the state of Oregon. Apparently about 5 or 6 years ago legislation was enacted in Oregon that allowed Portland Metro (the largest COG) to do cost recovery for its GIS data and services by exempting them from the Oregon state statute.

Go to the following URL http://storefront.metro-region.org/drc/ and you will see Portland Metro Storefront for GIS data and services. If you go to the following URL http://storefront.metro.dst.or.us/drc/aboutdrc/metrogis.cfm#Marketing you will see lots of info on how those charges are justified. These fees have played a key role in funding of Portland Metro's GIS program. In general I think that cost recovery does occur more at the local level across the US than at the state level. - Ian Von Essen

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Ohio's Response

Historically, Ohio has had a very strict interpretation of the public records law. Therefore, most state and county organizations supply information at the cost of reproduction or the cost of the medium to deliver it. In the Ohio GIS Support Center, we also sell some enhanced data products (CDs) but it is literally the cost of postage and a CD. Since it can be downloaded at no cost from our website, we strongly encourage folks to go get it from the web.

Ian is right, the most creative stuff seems to be happening at the local level. There are a few Ohio counties that have used an increase in the conveyance fee but this is generating maintenance funds, not development funds. We also have one county in Ohio that floated a bond to implement GIS. OGRIP drafted up a paper regarding potential funding mechanisms available to the counties. If you are interested, I have slapped in the website below.

I would second Hawaii, Maine and Utah in their philosophy and can say that in Ohio, I believe this availability has stimulated the GIS community and promoted GIS (especially at the county level) development. I am sure that Earl Epstein, here at The OSU would wholeheartedly agree. Great discussion - srd

http://www.state.oh.us/ogrip/pdf/2001%20funding%20sources.pdf

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Kansas' Response

In Kansas we have always distributed geospatial data based on our open records law. Only processing, media, postage and mailing charges are recovered for data requests that require staff assistance. Most all of our data is available through FTP on the web site as well (http://gisdasc.kgs.ukans.edu). As Cy Smith of Oregon mentioned, Kansas does have a portal operator, Kansas INK, that charges for some premium services available through the portal. Roughly 80-90% of the state information available through INK portal (www.accessKansas.org) is free, however some value-added services require an annual subscription.

In the geospatial data world, we are beginning to work with the portal folks to identify and define interactive mapping applications that we will serve from our GIS Clearinghouse site, but be transparently available through the INK portal. We expect that some of these value added applications will require a subscription and/or click charge. We hope to be able to generate some cash flow in this manner.

That said, we will continue to distribute geospatial data as an open record (for free and/or cost of shipping, etc.) for our basic geospatial data sets. We will only consider value-added applications for the subscription/click charge model. – Rick

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Kentucky's Response

The Kentucky open records act does allow for charging commercial entities under a different rate structure. However, for political reasons, the OGI basemap data are available on our website for free download.

We are however looking at alternatives. The largest constituency of our basemap data is not inside state government - who does support our office fiscally. We have a big imbalance going on between who benefits the most from our work - and who is paying our operating expenses. It's making for some interesting 'discussions'. The digits for the basemap are funded out of the g.f. as a capital item. - Susan

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Alaska's Response

Alaska public records must be disseminated at the cost of reproduction. Fees can be charged for distributing GIS databases because they are distinguished as electronic products and services. At

DNR, we use a combination of free downloads and fees. In many cases we have found customers often do not care about modest fees, their highest priority is for immediate response to a request. Fees are also waived for anyone the DNR is working with. Fees we collect are directed to making the public access program easier, better, and cheaper, about a 1/3 of a GIS analyst time. The trend is an increase in internet postings and a decrease in fee receipts - but people still want bulk purchases from CD's, not lengthy downloads. Details at http://www.asgdc.state.ak.us/homehtml/pubaccess.html - a significant part of this site was paid for by previous user fees. - Rich

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Tennessee's Response
In TN, TCA 10-7-506 allows for fees in excess of repro. to be assessed for commercial access to GIS data. The "structure", etc. is up to 10% of the development costs and/or up to 100% of the maintenance costs.

Our goal when we sought these changes 2 years ago were to clean-up a prohibitive piece of Legislation that allowed only 5 counties to assess fees. The change allowed for all counties, and added State, municipal, and public utilities to asses the fees. The second, and equally compelling reason for the change was that the current administration, and Legislature desired a method of protecting these huge investments in creating the GIS data.

In practice, there are several counties and municipal governments who are accessing fees. In most cases, their expressed goals of 1) protecting the investment and 2) offsetting the cost to maintain are being met. Several had expressed a belief that 1) they could recover 100% of the development costs and 2) become self-sustaining on the maintenance side. But the reality that all seem to have come to is that there is not enough demand for this to happen, and since a benefit is being realized by having the data and systems, we should not be recovering 100% of either. The State has yet to delve into this arena, but we are developing all of the appropriate mechanisms do so, pursuant to TCA, at some future point. - Mark

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Oklahoma's Response
Geo Information Systems at the University of Oklahoma offers a subscription-based program for accessing oil and gas data over the Internet. You could check with Mary Banken for more information. Their web site is: www.geo.ou.edu. - Bob Springer

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California's Response
Charging for data has proven disastrous for California. I would urge great caution if you seriously consider setting up a fee for data. Some of the problems:

   - Loss of cooperation / unequal exchange:
In a free data system cooperation is simple. Data is just freely exchanged. Cost sharing arraignments are also easy to construct public / private entities are simply working together to reach a common

goal.

When the free data exchange system and a fee for service system try to work together serious problems often emerge. In California one of our data centers set up a fee for service data integration service generally using data produced by others as a base. The system lead to a long -term misallocation of resources.

For example if the department of Forestry and produced a layer for $500,000 and put it in public domain the data center could then update the layer spending $50,000 and lay claim to the new layer. When Forestry then needed to use the layer they would be put in a very strange position. They had done 90% of the work and would receive no compensation for their efforts but would need to purchase the updated product. Worse yet, they could not now get funding to do an update their layer themselves since the update work had already been done by the fee service. If they were to somehow find the funds they would be criticized for undercutting the cost basis of the data center GIS operation.

The layer once transferred to the fee system could not be recovered by the free system. Funding could not be made available since the fee system would vigorously defend its "profitability".

- Government is a monopoly and almost by definition does not experience competitive pressures
Once the layer is "owned" by the fee system there is not much incentive to perform another update. Government is after all a monopoly by definition. The sad truth is that often in government there is incentive is to build turf rather then to work for the public benefit. In a fee system this incentive is more pronounced since the system itself pushes the manager to behave in ways which are contrary to the public interest, but in effect demanded by the job description. One key strange incentive is the disincentive to update problem.

If the entire community can't get funding to update a layer then that community is forced to buy out of date information. The same revenue arrives if the fee service performs updates or puts the money elsewhere. Its then revenue optimizing to move on to another layer grab more material from the free sector then pick up new "customers".

The fee operation then grows ever larger but the downside to society is that it becomes quite difficult to update framework data. Over time in government, fee services become often become unintended pyramid schemes. The fee for service is in effect a government subsidized monopoly that can thrive even if the customer base is desperately unhappy.

-Ashes, ashes we all fall down
When one government entity charges for data other governmental entities retaliate by charging for their information. Consequently when the fee for service bubble bursts (ultimately this seems to happen with few exceptions) it can be quite expensive to recover. In California we had to face a combination of outdated framework data and a GIS community divided by the free/fee divide.

Now that our State government has returned to a free system, local government that charges for data

is in a sense trapped. A user fee once established is difficult to curtail. Its obviously unfair for the State government to pay for data from local government that charges and to expect data free from local government which does not charge. It looks like we will be able to get out of this ethical box by careful cost sharing but we are in for a long a difficult negotiation.

- Swiss cheese

When some of local government charges for information but most does not State regional plans have a sort of Swiss cheese look. There are areas for which that State cannot include information in public documents because the State does not have intellectual property rights to make public information for which counties charge.

- Chicken Pox

Another class of problem shows up when the private sector maps an area in exchange for the right to sell the information to others. This gives regional plans a kind of "chicken pox" look. Chicken pox maps are particularly painful during a public emergency - the prices go up when the vendor knows the State either has to buy the information at a high price or risk human life.

- But aren't their examples of successful government data charging operations?

Yes, there are. If there is a very good manager that knows when to behave like a governmental rather than a private sector entity or a State government that has the power to enforce good citizenship.

Typically, a charge system can exist best when:

- It's operating in a wealthy community (Everything is simpler to manage with sufficient funding).
- The Federal government subsidizes it (A community in a "tourist area" where Federal officials like to travel or a powerful political force in Washington bringing home pork)
- A constrained domain with a captive industry that does not want public access (Assessors parcels sales to the real estate industry)

- Economic Effects of Charging for government data

Since most of the value of a data set comes from analysis and value added by those other than the entity that produced the data its economically efficient to have a large number of data users. Its interesting to note that in countries where the government has a free data policy there are many value added information companies. In countries where the government sells information the ability to value add is cut off at the root.

I know many of my counterparts in other States have State/Private sector partnerships with California companies when California itself does not. This is in large part because without access to the intellectual property rights to our own State's framework data partnerships were difficult to establish.

It's also clear that we have not led the pack in cost sharing with the Federal government. Federal government in most cost sharing agreements requires open access. There isn't much incentive to cost share when you charge for data and because when you cost share the information needs to be in public domain.

Bottom line, if your State charges for information it risks being isolated from other levels of government, cutting off partnerships with your own companies and creating a number of strange incentives within your State government. We have been there and done that, its time to move on. Charging for data isn't "creative" its playing Russian roulette with your State's mapping systems. – Gary

Appendix L: Interim Strategic Plan Report of the Indiana State Government GIS Task Force

MISSION
Collaboration of state agencies designed to foster the efficient use of state GIS resources and provide geographic data in usable form to the citizens of Indiana.

STRUCTURE
GIS coordination is the effort to realize economies based on reducing redundancy and sharing of data and resources between state agencies.

GIS coordination within state government starts with the GIS user community. Program representatives from various agencies comprise the State Government GIS Task Force. The Task Force provides the talent pool and staffing resources for planning, development and implementation. Agency GIS Coordinators are tasked with assuring consistency of GIS implementation within their agencies and at the enterprise level. The State GIS Coordinator serves the Task Force, Agency GIS Coordinators and the GIS Steering Committee as needed to facilitate planning and development. The GIS Steering Committee is comprised of agency business experts who act as champions for GIS planning and development within the agencies, and at the enterprise level. The first Steering Committee meeting is anticipated in early October, 2001.

OBJECTIVES
- Establish and maintain a planning processes for the GIS governance, planning and development

The Task Force is populated by technical and program experts from various agencies. Task Force committees will be established to deal with prioritized issues and tasks as necessary. Policy and standards recommendations will be presented to the Information Technology Oversight Commission for adoption. Governance of GIS will be the domain of the GIS Steering Committee, which is slated to convene for the first time in early October, 2001.

- Pilot new technologies and services.

As technology and business needs change there will always be a gap in services being provided by the state and additional services sought by customers of the state. Development of infrastructure and new products will be tested and implemented as part of a coordinated GIS planning and development process.

- Establish new partnerships for GIS development.

GIS coordination outside of state government has reached a new height, and offers a new level of coordination. The Indiana GIS Initiative (INGISI) and it's executive group the Indiana Geographic Information Council (IGIC), recognized by a Governor's Proclaimation in 2000, are comprised of

GIS'ers outside of state government, along with representatives of state government too. INGISI represents an organized assemblage of external customers to state GIS. IGIC provides an organized forum for dialog between the state and a wide spectrum of customers to the state for GIS services.

SCHEDULE OF MAJOR EVENTS

Jan 2001   Begin Task Force strategic planning
Jun 2001   Begin implementation of GIS pilot projects
Jul 2001   Task Force completes Draft Strategic Plan
Aug 2001   Task Force begins Implementation Planning
Sep 2001   Task Force completes Draft Implementation Plans
Oct 2001   Convene Steering Committee

INITIAL TASKS ASSOCIATED TO THIS PROJECT

- Develop the Task Force planning process
- Determine metrics for GIS applications and services
- Participate in state government IT governance
- Participate in IGIC planning process
- Pursue potential partners for cooperative GIS endeavors

Appendix M: Status of FGDC Standards
as of March 19, 2000

Final Stage - FGDC Endorsed Standards

Content Standard for Digital Geospatial Metadata (version 2.0), FGDC-STD-001-1998

Content Standard for Digital Geospatial Metadata, Part 1: Biological Data Profile, FGDC-STD-001.1-1999

Spatial Data Transfer Standard (SDTS), FGDC-STD-002
(a modified version was adopted as ANSI NCITS 320:1998)

Spatial Data Transfer Standard (SDTS), Part 5: Raster Profile and Extensions, FGDC-STD-002.5

Spatial Data Transfer Standard (SDTS), Part 6: Point Profile, FGDC-STD-002.6

SDTS Part 7: Computer-Aided Design and Drafting (CADD) Profile, FGDC-STD-002.7-2000

Cadastral Data Content Standard, FGDC-STD-003

Classification of Wetlands and Deep Water Habitats, FGDC-STD-004

Vegetation Classification Standard, FGDC-STD-005

Soils Geographic Data Standard, FGDC-STD-006

Geospatial Positioning Accuracy Standard, Part 1, Reporting Methodology, FGDC-STD-007.1-1998

Geospatial Positioning Accuracy Standard, Part 2, Geodetic Control Networks, FGDC-STD-007.2-1998

Geospatial Positioning Accuracy Standard, Part 3, National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998

Content Standard for Digital Orthoimagery, FGDC-STD-008-1999

Content Standard for Remote Sensing Swath Data, FGDC-STD-009-1999

Utilities Data Content Standard, FGDC-STD-010-2000

Review Stage

Completed Public Review

Facility ID Data Standard

Geospatial Positioning Accuracy Standard, Part 4: Architecture, Engineering Construction and Facilities Management

Content Standard for Framework Land Elevation Data

Metadata Profile for Shoreline Data

Hydrographic Data Content Standard for Coastal and Inland Waterways

Digital Geologic Map Symbolization

Geospatial Positioning Accuracy Standard, Part 5: Standard for Hydrographic Surveys and Nautical Charts

Out for Public Review
Note: "(month date, year)" indicates closing date for public review.

Address Content Standard (closes June 22, 2001)

NSDI Framework Transportation Identification Standard (closes July 20, 2001)

U.S. National Grid for Spatial Referencing (closes June 22, 2001)

In Review by SWG Prior to Public Review

Content Standard for Digital Geospatial Metadata: Extensions for Remote Sensing Metadata
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Draft Stage

Earth Cover Classification System

Encoding Standard for Geospatial Metadata

Geologic Data Model

Governmental Unit Boundary Data Content Standard

Biological Nomenclature and Taxonomy Data Standard

Proposal Stage

National Hydrography Framework Geospatial Data Content Standard

National Standards for the Floristic Levels of Vegetation Classification in the United States: Associations and Alliances
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Discontinued from FGDC Standards Process

Metadata Profile for Cultural and Demographic Data (draft stage)
Environmental Hazards Geospatial Data Content Standard (draft stage)
Transportation Data Content Standard (proposal stage)

FGDC, USGS, 590 National Center, Reston, VA 20192
URI: http://www.fgdc.gov/standards/status/textstatus.html